FORESTRY.[1]

THE present half-yearly issue of the Transactions of the Royal Scottish Arboricultural Society contains a considerable number of useful and interesting articles on forestry and woodcraft generally. An article entitled "The Duty of the State as Regards Afforestation" shows, in a striking summary of the opinions expressed on the subject by landowners, foresters, and men of science, that all are agreed that the State should encourage extended afforestation. The article indicates very clearly what the State can and should do with this object in view.

In "Afforestation and Local Taxation" Sir Kenneth Mackenzie, Bart., president of the society, shows the disastrous results to the local taxpayer which might follow indiscriminate afforestation in large, continuous blocks on land compulsorily purchased by the State. The State could do a great deal to encourage afforestation by private owners by removing the burdens which at present deter many from extending their plantations. In the words of the author:—"There is a premium offered at present against planting—as long as an owner occupies his land with sheep he only pays rates on three-eighths of its valuation. If he fences and plants it, he has to pay rates on the full value appearing in the Valuation Roll."

"The Sitka Spruce as a Tree for Hill Planting and General Afforestation" (with plate), by Mr. Crozier, Durris, is the most important article which has yet appeared regarding the sylvicultural characters and capabilities of this important conifer.

"Vegetable Remains from the Site of the Roman Military Station at Newstead, Melrose," is an article which will appeal to historians and antiquarians. Samples of deposits from the pits and trenches of the Roman station were examined by Mr. H. F. Tagg, of the Royal Botanic Garden, Edinburgh. The numerous twigs and branches examined belonged to some seven different species of trees which have always been considered indigenous. There was no evidence to show the presence in Britain, at the period of the Roman occupation of this station, of species of exceptional interest.

Mr. W. Mackenzie, Forester, Novar, contributes an article entitled "Underplanted Larch Plantations at Novar." The sylvicultural methods adopted to combat the ravages of the larch canker fungus are clearly and succinctly described.

"Continental Notes—Germany," by Mr. B. Ribbentrop, with figures, gives a review of the recent sylvicultural developments in that country, while Mr. A. G. Hobart-Hampden deals in a similar manner with French sylviculture.

The society's excursion to the forests of Bavaria, which took place last August, is interestingly described by Sir Andrew N. Agnew, Bart. In "Notes and Queries" are included many topics of great value to sylviculturists, and the "Reviews and Notices of Books" will bring them in touch with the recent literature on the subject.

WORK OF A LOCAL SCIENTIFIC SOCIETY.

THE value of the work accomplished by local scientific societies is, perhaps, not always given adequate recognition. On what may be described as the educational side, such societies create and foster interest in the world of nature; and out of this comes the desire to investigate parts of the field of science. A report, programme, and presidential address received recently from the North London Natural History Society provide evidence of the well-directed activity and progressive spirit which should be characteristic of a society that desires to extend a knowledge of science and promote its progress. The society is particularly to be congratulated upon its research committees, which are concerned, among other matters, with the flora, lepidoptera, and birds of the local district. This district covers an area within twenty miles of St. Paul's, and is subdivided into twelve sections for recording.

As instances of the valuable work which these committees accomplish, we mention a few points in the annual report for 1908—that for 1909 not yet being available. It appears that the adventitious flora of the district is spreading widely, while, as might be expected, the native flora is diminishing. Twenty species were recorded for the first time in 1908, making the total of 684 species for the district. Six of these were aliens, and eight were new records for the outlying salt marshes of West Thurrock. Six additions were made to the list of Lepidoptera, bringing the total up to 542. The ornithological research committee, which was inaugurated in 1908, records 110 different species of birds, of which seventy-nine were then known to nest within the district. Two members of the biological research committee, Messrs. L. B. Prout and A. Bacot, have carried out a research on inheritance in *Acidalia virgularia*, and a paper on the results of their investigation was communicated to the Royal Society in February of last year.

It is clear, therefore, that the members are actively engaged in the extension and advancement of scientific knowledge. We congratulate the society upon the keenness and energy of its members and committees, both of which are worthy of emulation by other local scientific societies. The society has just taken rooms in Salisbury House, Finsbury Circus, for its meeting-place, library, and collections. The annual subscription is only five shillings a year, being kept purposely low in order to place the advantages offered within the reach of everyone. It is to be hoped many new and faithful observers will thus be brought within the scientific field through the instrumentality of the society. Subjoined is the main part of the presidential address delivered before the society on January 11 by Mr. Louis B. Prout.

Let us have done with the days of a nearly stationary membership of about seventy, and an average attendance of perhaps a score or less; let us individually use every endeavour to attract to our society all the nature-lovers with whom we come into contact, whether they aspire to be called "naturalists" or not; let us remember that no one who lives within reach of London at all can now plead the *inaccessibility* of our meeting rooms as an excuse for holding aloof, and that, although our local researches will continue to justify our title of the "North London Natural History Society," yet there is nothing whatever to prevent our drawing upon South London just as extensively as upon North London for our membership. It is proverbial that nothing succeeds like success, and if only the next few months witness anything like the accession of new members which the new facilities make feasible, the future of our society should be well assured.

I have directed attention more than once to the love of *facts* which has characterised the early career of most of those naturalists who have become the most famous for their *theories*. The pioneers of evolution—Darwin, Wallace, and Bates—were all careful and accurate recorders at a time when most "mere collectors," at least in entomology, no more thought of labelling every specimen with locality and other details of information than the philatelist of labelling every stamp with the date of purchase and the name of the dealer from whom it was obtained. The two hobbies were very nearly on a par. The collecting was, without reservation, an end in itself, and if the entomologist had any advantage over his brother collector, it was only in that he was developing a somewhat more æsthetic taste, and probably—unless he, too, collected solely in auction-rooms and similar localities—a somewhat healthier body. Science and all branches of research were equally beyond the mental horizon of both; and how could it matter when or where a specimen was obtained, unless it might be from the mercenary motive of knowing how to obtain more? I do not say that the outlook of the average collector has radically changed; I do not even say that I wish it radically to change. I have no patience with the lordly being who speaks and writes disparagingly, or even contemptuously, of the "mere collector," and forgets that he only theorises because it amuses him to do so, just as the other only collects with like intent; but I think most have now been educated up to that point where they know that there *is* value in facts, and I believe that the majority of these are willing to "take themselves seriously" to the extent of observing and recording those facts; and if there are any listening to me who have *not*

[1] Transactions of the Royal Scottish Arboricultural Society, vol. xxiii., part i. (January, 1910).

yet realised these things, I would urge them from henceforth to bear their part in this movement, which may result in issues more far-reaching than any of us can at the moment conceive. Let me repeat that it is not necessary for every nature-lover, nor for every collector, to become a man of science; yet everyone may become in some measure a contributor to science.

When do the facts observed, or believed to have been observed, become *data*? Not when they are thrown away loosely into the chambers of memory, to be brought out again for use a few years later, clogged with the dust of time, or metamorphosed by long yet unsuspected contact with some subtle subconsciousness with which they ought to have had no affinity. No; the memory, however excellent, is not a safe repository for facts which are to be used as data; as soon as possible they ought to be reduced to writing. For it is impossible to overestimate the importance of absolute accuracy as a basis for all scientific generalisations.

I have often been impressed with the thought of the dependence of the greatest statisticians on the humblest recorders. Most of us have had questions addressed to us by Prof. Karl Pearson on simple questions of family statistics; and the entomologists have been asked to furnish to the Evolution Committee of the Royal Society certain data regarding percentages of black and of white moths among their favourites. These are but random examples which occur to me of what is constantly going on in the world of to-day; and yet on the faithfulness of the replies to such questions may well hang the entire development of the infant science of eugenics, the whole welfare, and perhaps ultimately the very continuance, of the human race. Fortunately, I believe—and one may hold this belief without a very over-exalted estimate of the average integrity of mankind—the danger of wilful perversion of facts which are to be used as data is extremely small. No doubt there are romancers here and there, and a de Rougemont or a Dr. Cook may set back the clock for a moment or two on occasions; but men such as these have generally some motive of self-interest behind their romancing, and I do not think there is any large army of hoaxers for hoaxing's sake.

Although, however, there is very little to fear from wilful deceivers of their fellows, there is very much to fear from unconscious self-deceivers. It is true that we have little to depend upon, whether in nature-study or in scientific research, but the evidence of our senses; but it is equally true that we must not allow ourselves to be deluded by our senses. I have on other occasions urged that the cardinal virtue of a naturalist is fidelity to his own observations, but he must make very sure that they *are* observations, and not imaginings. It is a perfectly well-known fact that even careful and experienced men of science have sometimes been led astray by certain psychological processes, and have seen things which it has afterwards been proved to demonstration were not, and could not have been, present for them to see.

The subtle enemy which all observers and recorders have to fight is, I believe, named by psychologists "suggestion," or, more particularly, "auto-suggestion." All of us know, and yet few of us give the knowledge its due weight in dealing with the analysis of our observations, that whatever is present as a mental background is ever liable to colour the newly arriving impressions from without. If something which we see falls in naturally with our expectations, that is, if its incidence on the mind causes no sense of jarring, we assume that it is correctly observed, and make no attempt at verification; if, on the other hand, it conflicts with our expectation—in other words, with past experiences or general habits of thought—we are sceptical, and demand a repetition of the observation before acknowledging that our senses have not deceived us. Now is there not really a great deal to be said in favour of a diametrically opposite course? Should we not be more suspicious of the expected when it is observed, and more trustful of the unexpected? I need scarcely add that I do not mean this to be the universal principle of life; we should have more than enough to do if, every time we entered our homes, we made it a duty to investigate whether the familiar faces and objects with which we met—and had been expecting to meet—might not in reality be the phantasms of our own brain! I am referring solely to phenomena which are under observation or investigation for furnishing scientific data; it is in these that we are too apt to accept the expected, perhaps also too apt to discredit the abnormal.

A plain and evident observation, made under no preconceived notion that it was about to be observed, may, in a normal state of health, be noted down as a fact, and thenceforth relied upon. If a member of our ornithological or Lepidoptera committee observes a bird or a moth with which he is well acquainted, he is entitled to make and to use the "record," which should be given full credence. Of course, there may be an error—infallibility is not an over-common attribute of man—and it is always satisfactory if two or three can make the observation simultaneously, or in such a way as to confirm one another, or if, as with our botanical committee, a specimen can be obtained as a voucher; but no good purpose is served by constant suspicion of data of this kind unless the recorder has proved himself untrustworthy. On the other hand, the observer himself should be the first to desire every possible verification, especially in cases of intricacy or difficulty of observation, such as in most microscopic work, or where he has any reason to suspect that "the wish is father to the thought." In all such cases a fact should not be considered as established until it has been verified two or three times, and under the most favourable conditions obtainable.

The most difficult questions of all have been left until last and I really do not feel competent to give either an adequate answer. What facts or data are worth recording? And what steps should the recorder take to place them at the disposal of the specialist who could use them? In regard to the first question, I would say that, ideally, almost everything is worth recording; but, practically, life is too short, nature too long. While we are staying to record something commonplace, or already well known, we may be missing valuable opportunities of turning our attention to something more important. A retentive memory should be cultivated, so that we may know, to some extent, what has already been established by ourselves or others; and we shall then find that the most casual passing attention will suffice to accumulate any supplementary testimony that may be needed. For the rest, I think we ought to work upon the principle that a few things thoroughly observed and confirmed will form from us a worthier contribution to the sum total of science than a hundred half-observed and half-guessed at. As to the second question, To what use should the recorder put his data? I touched upon this in my former address, but there are great difficulties in the way of the application of sound methods, and the ideal arrangements are as yet far off. A society like ours ought to have a research committee in every possible field of nature-study, besides one or two committees for coordination of work along different lines—organisation, biology, topographical knowledge, bibliography—besides a sort of clearing-house for miscellaneous information; then (and not until then, I fear) it will be possible for observers rightly to place their data, and though much will be handed in which leads no further, there will also be much solid material for the rearing of the noblest edifices in the future of natural-history research.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The Hebdomadal council has appointed Prof. Poulton, F.R.S., Dr. Dixey, fellow of Wadham College, and Dr. Malcolm Burr, New College, as representatives of the University at the International Congress of Entomology to be held at Brussels in August next.

WE learn from *Science* that Columbia University has received an anonymous gift of 70,000*l.* for the erection of a building for the faculty of philosophy. The University has also received anonymously 3000*l.* for work in agricultural education. From the same source we gather that a zoological laboratory is to be erected at the University of Pennsylvania, at a cost of about 50,000*l.* In making the announcement recently, Provost Harrison stated that it would be "the most complete biological laboratory yet